REMARKS

Review and reconsideration of the Office Action dated April 12, 2005, is respectfully requested in view of the above amendments and the following remarks.

The Examiner acknowledges receipt of the Preliminary Amendment filed on August 20, 2003, wherein claims 1-17 were cancelled, and claims 18-34 were added.

Claims 18-34 are currently rejected. Claim 34 would be allowable if amended to overcome the §112 rejections.

Support for the amendment of claim 31 can be found in paragraph [0008] of the specification, as discussed below.

Office Action

The paragraphing of the Examiner is adopted.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.

Replacement drawings are provided showing (a) a separate flow duct leading to each bearing so that the bearing gaps have an air stream supplied independently, and (b) further flow ducts so that air flows through bearing gaps successively.

Specification - Objections

Paragraph 6 is objected to for referring to claims.

Paragraph 6 has been amended.

The specification is objected to for not providing basis for the subject matter of claim 23, specifically: "further flow ducts formed in the housing".

In response, Applicants refer the Examiner to paragraph [0008] reciting:

> According to a preferred second alternative embodiment of the invention, which can be implemented in a structurally easier way, there is however provision for the gaps between the bearings to communicate with one another via further flow ducts formed in the housing, so that the air stream can successively flow through them. Here, the flow duct preferably leads to the bearing which is nearest to the turbo wheel and which is subject to the greatest temperature loading and through which the initially still relatively cool air stream should therefore preferably flow first.

Accordingly, the specification provides teaching of the subject matter of claim 23. Withdrawal of the objection is respectfully requested.

Claim Rejections - 35 USC § 112

Claim 18 and its dependent Claims 19-26; and Claim 27 and its dependent Claims 28-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants have been carefully reviewed and revised the claims (translations of German language European format claims) for greater clarity and to conform to US practice.

Withdrawal of the rejections is respectfully requested.

Claim Rejections - 35 USC § 103(a)

Claims 18-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hassler (Patent Number DE 100 40 508 A1), in

view of Andres et al. (Patent Number 5,310,311). According to the Examiner:

Regarding Claims 18-26, Hassler discloses exhaust gas turbocharger (7) having a housing and having a shaft guided in bearings. At least one flow duct (via 11), via which at least one bearing gap can have an air stream applied to it, is formed in the housing.

Regarding Claims 27-33, the method as claimed would be inherent during the normal use and operation of the modified Hassler device as disclosed in the rejection of Claims 18-26.

Applicants respectfully traverse.

Hassler concerns a turbocharger in which conventional **bearings are supplied with oil** for lubrication and heat removal.

Hassler teaches that it is known, in order to prevent overheating of the bearings and premature decomposition of the oil at the location of the bearings, to supplementally cool the **bearing housing** with water. To be reliably continuously supplied with water, the turbocharger must however be mounted at or below the level of the radiator, which is an undesirable design restriction. Further, the large amount of water required increases engine weight. (Hassler paragraphs 3-5).

Hassler solves the level and weight problem by flowing air rather than water through the bearing housing to remove excess heat. The bearing housing is provided with fins and is cooled with air.

The bearings however, as before and as in the case of water cooling, **remain oil lubricated**. As disclosed in paragraph 21 of Hassler, when the engine is turned off a secondary air fan is turned on, the air rapidly cools the bearing housing **to prevent overheating and coking of the lubricating oil.**

Thus, Hassler does not teach a turbocharger wherein magnetic bearings without oil are used in place of floating bearings lubricated and cooled with oil.

As discussed in paragraph [0007] of the present specification, magnetic bearing of the shaft provides the advantage that it is possible to dispense with the use of oil as lubricant. While a considerable portion of the heat of the shaft is conducted away by the through-flowing lubrication oil in said conventional bearings, this is not the case with the magnetic bearing. As a result, the air located in the bearing housing is heated. However, the air must not exceed the maximum permitted temperature for the magnets which are used. When NdFeB magnets are used this limit is approximately 130°C.

As discussed in paragraph [0007] of the present specification, the basic idea of the invention is to use the bearing gaps, which are necessarily present between the magnet bearings, for forced cooling. According to the invention, it is therefore proposed that at least one flow duct, via which at least one bearing gap can have an air stream applied to it, is formed in the housing.

Accordingly, Hassler has no relation to the present invention.

The Examiner relies on the teachings of Andres to supply what is missing from Hassler.

Applicants respectfully traverse.

Andres in fact concerns an air conditioning compressor. Such a compressor has no relation to the environment of use of a turbocharger. First, the magnetic bearings for an air conditioning compressor are never subject to magnet degrading temperatures as high as 130°C, thus there is no need to remove

heat. Further, since there is no requirement to remove heat from the magnetic bearings, Andres can not provide suggestion therefore, and does not teach heat removal by any means, and by flowing air in particular.

Further, as heat is actually generated in the compressor of Anders, supplying air from the compressor side of Anders to the bearings would introduce rather than remove heat, or at least be a very inefficient method of heat removal.

Accordingly, the person of ordinary skill reading these two references would find no suggestion for the present invention.

Withdrawal of the rejection is respectfully requested.

Allowable Subject Matter

Claim 34 would be allowed if rewritten to overcome the rejection(s under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Applicants respectfully submit that claim 34 is allowable. However, in view of the believed allowability of the main claims, Applicants do not present claim 34 in independent form.

Conclusion

The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

Applicants believe that all the claims are now allowable. Favorable consideration and early issuance of the Notice of Allowance are respectfully requested. Should further issues remain prior to allowance, the Examiner is respectfully

IN THE DRAWINGS

Please replace the original figures with the attached replacement figures.

Figure 1 remains unchanged, and shows air flowing via compressed air ducts 65 and 62 to the bearings and leaving via exhaust 63.

Figure 2 is based on Figure 1 but has been amended to show that cooling air is supplied to both bearings simultaneously via compressed air flow ducts (65, 62, 62') after which it exits via outlet openings (63, 63', 66).